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(71) Applicant: ALVES, Hêlio, Vieira [BR/BR]; Rua Duque
de Caxias nº86, CEP-04748-020 São Paulo, SP (BR).

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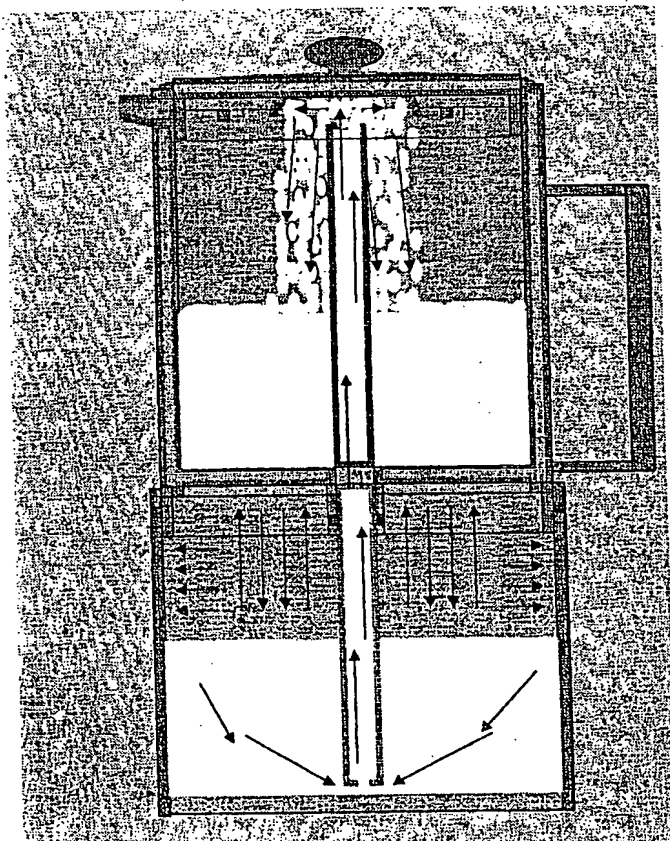
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[Continued on next page]

(54) Title: MICROWAVW MILK JUG



(57) Abstract: The present invention consists of a microwave (oven)-driven milk boiling device, serving to boil natural milk-powder or to make chocolate or similar items, or to make cappuccino or "coffee with milk-powder", or even to boil water; all under pressure, in a preset time, being useful also to verve directly to the table. It boils milk in a lower container, having a safety valve and conveys the boiled milk to another container above it, which is done within a period of 2 minutes, which time may vary according to the microwave oven used.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

MICROWAVE MILK JUG (FIGURE 1 – Cross-section – scale 1:1)

The present invention consists of a microwave(oven)-driven milk boiling device, serving to boil natural milk or milk-powder or to make chocolate or similar items, or even to boil water; all done under pressure, in a prestipulated time, it being useful further to serve directly to the table, with original conception, in view of its efficient use.

The invention is a novelty, there being no notice of a similar domestic or foreign one for use in microwave oven, as conceived.

As is well-known, milk usually is brought to a boil under fire action and when reaching boiling point, the liquid comes to ebullition and grows in volume, thereby forming gaseous bubbles which rise within the container, which is then removed from the fire to prevent spillage. There is a milk jug that uses a cone within a coverless pan-shaped container, which allows the milk to remain boiling, both in the fire and in a microwave oven.

The present invention brings milk to a boil in a filled container and place milk already boiled in another container, within a period of 2 minutes, which may vary depending on the microwave oven used. Milk placed in the second container does not spill, because such a container contains walls, bottom and a plastic-covered aluminum cap, proper to use in microwave and food.

Heat until the boiling point occurs because, under microwave action, friction of mixed liquid and solid molecules is initiated and, with the boiling, steam is formed with a force sufficient to impel the liquid of the bottom container through two (2) sequential tubes, to fall into the upper container, ready to serve at the table and where it is no more re-boiled in view of the aluminum protection.

Both pure milk and chocolate can be boiled likewise, after adding powder to cold or warm milk.

Likewise, it also makes *milk with water and milk-powder*, and further *cappuccino* or coffee with milk-powder, simply adding powder

thereof to cold or warm water and then operate the microwave oven for the same period of time as to boil natural milk.

Thus, one may obtain perfectly sterilized liquids, in a perfect manner for alimentation, specially for babies, when milk-powder is used and that, in order to become pure, must be prepared in sterilized water.

I – DESCRIPTION OF MATERIAL USED AND PARTS

MATERIALS: In the making of parts to be described below, microwave oven-resistant and proper to food materials are used, the internal walls of the boiling container being made in aluminum and covered with plastic; in all parts, imported plastic (Polyeter Imida PEI) will be used, which is unbreakable, transparent, resistant to high temperatures, proper for microwaves and meets FDA standards in USA, or other standards produced in Brazil or abroad, which may have at least the same technical specifications as that.

PARTS (numbered as FIGURES, in SCALE 1:1).

BOILING CONTAINER – (FIGURE 2 – Cross-section and FIGURE 3 – Topview): a cylinder-shaped plastic container having a mouth in the upper part with about 9 cm dia; at the external part, near that mouth, it has 4 points in solid cubic format (1), with face with about 0,5mm, and which will serve to fasten this part to the SERVING CONTAINER – FIGURE 4; it has a base (3) with about 0,5 cm height, formed by the extension of its side walls beyond the bottom; and in outside part, near the mouth, it has a minuscule excavated space (2) with the same thickness as this wall, in a concave half-sphere format, with the larger diameter (0,5mm) turned outwards, intended to form a Safety Valve together with the external piece (2), which is a rectangular lug-shaped fixed support, where the part named PRESSURE SEALING – FIGURE 8 will fit.

SERVING CONTAINER – (FIGURE 4 – Cross-section and FIGURE 5 – Topview section): aluminum mug-shaped cylindrical container (4) entirely covered with plastic; it contains a mouth (5) of

about 9 cm dia. in the upper part, containing in the bottom a hole with approximately 1 cm dia (6) with plastic cylindrical walls around it, which rise both to the internal part for about 2 cm (7) and likewise to the outside part (7) and which serve to fasten the 2 liquid conducting tubes of FIGURE 6 and FIGURE 7; it has further a small ring-shaped base (8) (extension of side walls beyond the bottom), containing L-shaped notches (8) and which will serve to fit the SERVING CONTAINER of FIGURE 2; it contains one external lug (9) to hold the MICROWAVE MILK JUG – FIGURE 1, which is hollowed in its horizontal parts (10) which connect it with the container; and above, in the outside part, near the mouth, it has four 0.5mm points in a solid cubic format (11) which will serve to hold the MILK JUG CAP – FIGURE 10; it has further, in the upper part, one liquid outlet nozzle (12) to serve at the table.

LIQUID CONDUCTING TUBES – (FIGURES 6 and 6.1) – Cross-section and topview; and FIGURES 7 and 7.1 – Cross-section and topview): made in plastic in cylindrical format, with a size near container height and diameter of about 1 cm; the first tube of FIGURES 6 and 6.1 fits through outside pins of solid cubic formats (13) that it has near one of the ends, at the internal base of the bottom center of the SERVING CONTAINER of FIGURE 4; and in the other tube of FIGURES 7 and 7.1, which, in addition to be equal to that and fit to the base externally located in the bottom center of SERVING CONTAINER of FIGURE 4, it further has 2 rectangular notches (14) around the final part of its mouth, which will serve for entrance of liquids, which will be done under pressure; in the occasional obstruction of the tube, the safety valve of the BOILING CONTAINER of FIGURE 2 will be operated.

PRESSURE SEALING – (FIGURE 8 – Cross-section and FIGURE 9 – topview section); a rectangle-shaped plastic piece, having in one of its ends and in the width part, the added format of a convex half-sphere, which will fit into the concavity (2) existing in the side wall near the mouth of the BOILING CONTAINER – FIGURE 2 for sealing, and

holding to the external lug (2) as it is seen in MICROWAVE MILK JUG – FIGURE 1, thereby forming the Safety valve of this container.

SERVING CONTAINER CAP – (FIGURE 10 – Cross-section and FIGURE 11 – topview section): made in plastic and cylindrical format, it contains in its upper part a round shape gripper (15) in order to grip it, and a cylinder-shaped side wall (16) containing 4 L-shaped hollows, intended to fit into the mouth of the SERVING CONTAINER of FIGURE 4.

II – DEMONSTRATION OF INVENTION OPERATION: FILLED BOILING CONTAINER – FIGURE 12; SERVING CONTAINER WITH TUBES ADDED – FIGURE 13; MILK JUG READY TO BOIL – FIGURE 14 ; MILK JUG BOILING MILK – FIGURE 15; MILK JUG WITH BOILED MILK TO SERVE – FIGURE 16.

MILK JUG operation is now demonstrated, whose procedures are mostly common in its general use. The BOILING CONTAINER is taken at normal position, that is, with mouth upwards, and place in it natural milk or previously mixed with filtered water or chocolate or chocolate products, or *cappuccino* powder, or coffee powder with milk, in the recommended measures, and mix until dissolving, the same procedure to fill as shown in FIGURE 2 being allowed. The objective is obtaining the liquid boiled and sterilized to drink. Then, as it is seen in FIGURE 13, one places the two (2) liquid conducting tubes (18), which are fastened to the bottom of the SERVING CONTAINER, in its internal and external parts; afterwards, as is shown in FIGURE 14, the two containers (19) are fitted and the CAP (20) is placed into the SERVING CONTAINER, the MILK JUG being then ready to be taken to microwave oven for the time stipulated, in this case, approximately 2 minutes. As it can be seen in FIGURE 15, through indicative arrows, in the bottom part of the BOILING CONTAINER, the liquid, through the action of microwaves, will start its boiling process that, in being initiated, will produce the transformation of the liquid into steam, that in turn will be

accumulated in the small empty space without milk, thereby producing pressure for all sides, causing, by force of the pressure exercised, the liquid to leave by the only place possible, that is, the bottom of the container, where the tube hole is located and in penetrating therein, it will rise by the first tube of this container and then, by the second SERVING CONTAINER tube in order to beat its CAP and falling therein under gravity, internally, ready to serve, as it is seen in FIGURE 16.

A table for heating time with temperature ranging according to the microwave oven brands, and in accordance with the content of the liquid preparation to boil, will accompany the device, for user's guidance who, thus, will end up knowing in a short period of time, the own table for the temperature times to be used in his/her microwave oven.

CLAIMS.

1°) **MICROWAVE MILK JUG** (FIGURE 1 – Cross-section – Scale 1:1), characterized for having one Final Element, composed of the following parts:

5 a) **BOILING CONTAINER** – FIGURE 2 – Cross-section and FIGURE 3 – Topview section): a cylinder-shaped plastic container having a mouth in the upper part with about 9 cm diameter; in the outside, near that mouth, it has 4 points in solid cubic format (1) with face around 0.5mm, and which will serve to fasten this part to the
10 **SERVING CONTAINER** – FIGURE 4; it has a base (3) with about 0.5 cm height, formed by the extension of its side walls beyond the bottom; and in outside part, near the mouth, it has a minuscule excavated space (2) with the same thickness as this wall, in a concave half-sphere format, with the larger diameter (0,5mm) turned outwards, intended to
15 form a Safety Valve together with the external piece (2), which is a rectangular lug-shaped fixed support, where the **PRESSURE SEALING** – FIGURE 8 will fit.

20 b) **SERVING CONTAINER** – (FIGURE 4 – Cross-section and FIGURE 5, – Topview section): aluminum mug-shaped cylindrical container (4) entirely covered with plastic; it contains a mouth (5) with about 9 cm diameter in the top, containing in the bottom a hole with approximately 1 cm dia. (6) with plastic cylindrical walls around it, which rise both to the internal part for about 2 cm (7) and likewise to the external part (7) and which serve to fasten the 2 liquid conducting tubes
25 of FIGURE 6 and FIGURE 7; it has further a small ring-shaped base(8) (extension of side walls beyond the bottom), containing L-shaped notches (8) and which will serve to fit the **SERVING CONTAINER** of FIGURE 2, contains 1 external lug (9) to hold the **MICROWAVE MILK JUG** – FIGURE 1, which is hollowed in its horizontal parts (10) which
30 connect it with the container; and above, in external part, near mouth, it has 4 solid cube-shaped 0,5mm points (11) which will serve to fasten

the MILK JUG CAP – FIGURE 10; it further has, in the upper part, 1 liquid outlet nozzle (12) to serve at the table.

5 **c) LIQUID CONDUCTING TUBES** – (FIGURES 6 and 6.1) – Cross-section and topview; and FIGURES 7 and 7.1 – Cross-section and topview): made in plastic in cylindrical format, with a size near the container height and diameter of about 1 cm; the first tube of FIGURES 6 and 6.1 fits through outside pins of solid cubic formats (13) containing near one of the ends, at the internal base of the bottom center of the SERVING CONTAINER of FIGURE 4; and in the other tube of 10 FIGURES 7 and 7.1, which, in addition to be equal to that and fit to the base externally located in the bottom center of SERVING CONTAINER of FIGURE 4, it further has two rectangular notches (14) around the final part of its mouth, which will serve for entrance of liquids, which will be done under pressure; in the occasional obstruction of the tube, the 15 safety valve of the BOILING CONTAINER of FIGURE 2 will be operated.

d) PRESSURE SEALING – (FIGURE 8 – Cross-section and FIGURE 9 – topview section); a rectangle-shaped plastic piece, having in one of its ends and in the width part, the added format of a convex 20 half-sphere, which will fit into the concavity (2) existing in the side wall near the mouth of the BOILING CONTAINER – FIGURE 2 for sealing, and fastening to the external lug (2) as it is seen in MICROWAVE MILK JUG – FIGURE 1, thereby forming the Safety valve of this container.

e) SERVING CONTAINER CAP – (FIGURE 10 – cross-section 25 and FIGURE 11 – topview section): made in plastic and cylindrical format, it contains in its upper part a round shape gripper (15) in order to grip it, and a cylinder-shaped side wall (16) containing 4 L-shaped hollows, intended to fit into the mouth of the SERVING CONTAINER of FIGURE 4.

30 **2º) MICROWAVE MILK JUG** – (FIGURE 1- Cross-section -Scale 1:1) characterized for having the same device, multifunctional

conception of use, that is, the same device can perform, through microwave action, cooking and/or boiling of varied liquid feed, such as water and milk together with other solid and/or soluble liquids, such as coffee or chocolate.

5 **3°) MICROWAVE MILK JUG** – (FIGURE 1 – Cross-section – Scale 1:1) in accordance with claim 1°), characterized for performing, through microwave of the oven inside the device, the cooking and/or boiling of coffee or chocolate in water or milk, *and at the same time, with the pressure of steam accumulated inside the container, to produce a*
10 *force sufficient to expel the liquid directly from a BOILING CONTAINER placed below, to another SERVING CONTAINER above, such a device thus generating force through action of microwaves of a conventional oven.*

15 **4°) MICROWAVE MILK JUG** – (FIGURE 1 – Cross-section – Scale 1:1) in accordance with claim 1°), characterized for being intended, in addition to obtain pure water or milk, or added with coffee or chocolate etc., boiled and ready to consumption, *the same complete device being further able to be used to serve final boiled liquids directly at the table.*

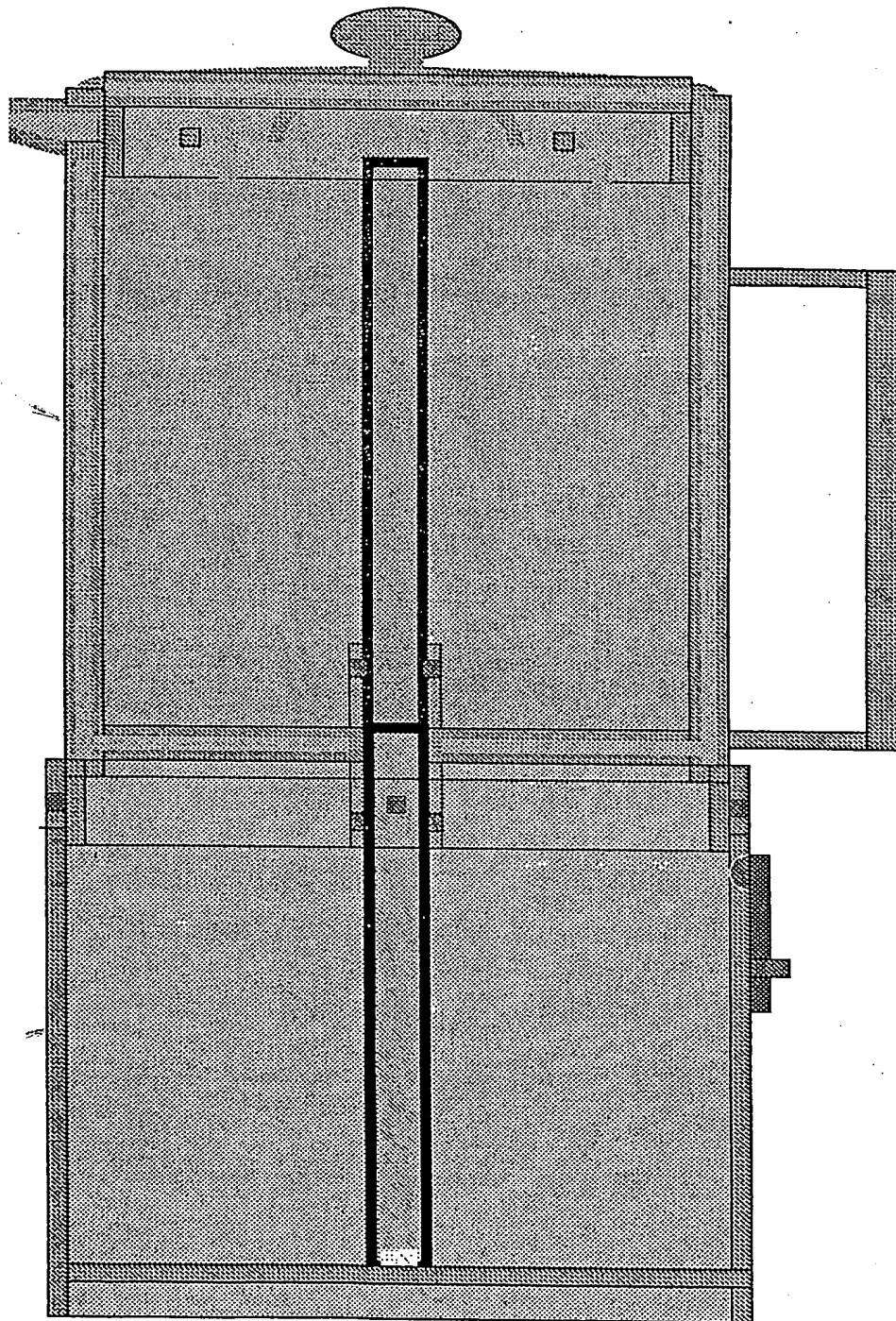
20 **5°) MICROWAVE MILK JUG** – (FIGURE 1 – Cross-section – Scale 1:1) according to claims 1°) and 2°), characterized for having a Safety Valve composed of the following parts: rectangle-shaped plastic PRESSURE SEALING – FIGURE 8 (Cross-section) and FIGURE 9 (Topview section), having in one end and in the part of width, the added
25 *form of a convex half-sphere, which will be fitted into the concavity (2) existing in the side wall near BOILING CONTAINER mouth – FIGURE 2, for sealing, and fastened to the external lug (2) as it can be seen in the MICROWAVE MILK JUG – FIGURE 1, thereby forming the Safety Valve of this container, which can be made in other formats.*

30 **6°) MICROWAVE MILK JUG** - (FIGURE 1 – Cross-section – Scale 1:1) characterized in accordance with claim 1°), for the innovative

conception of use of a plastic container to receive microwave actions and another container sealed with a metallic part in its walls in order not to receive microwave action, thereby preventing liquid spillages.

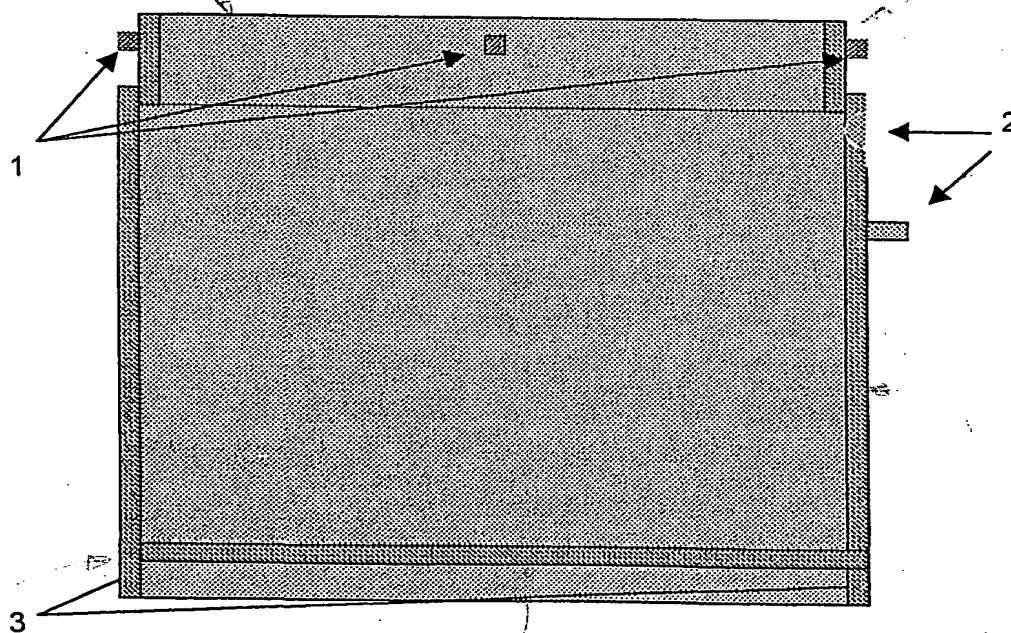
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FIGURE 1



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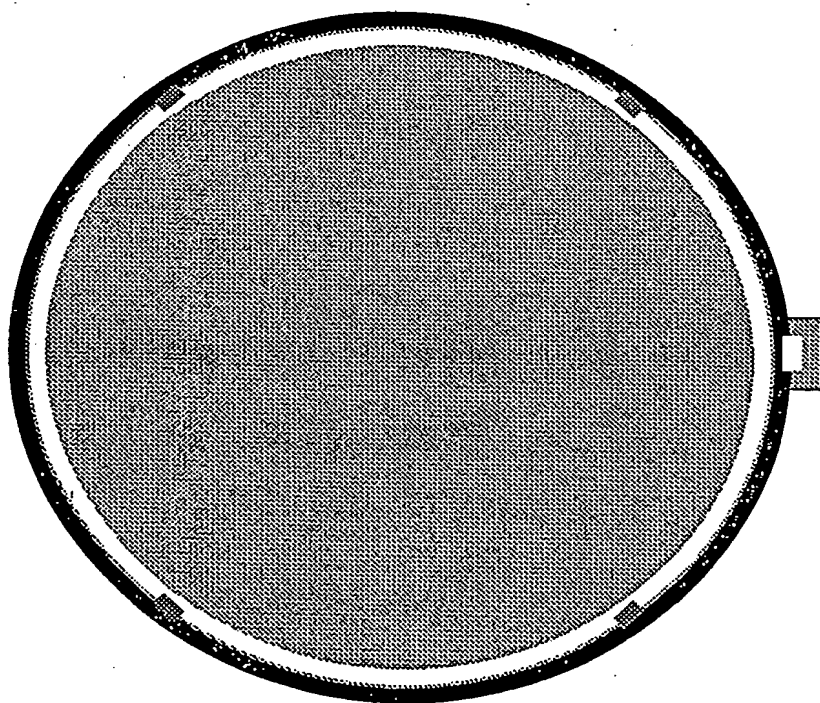
FIGURE 2



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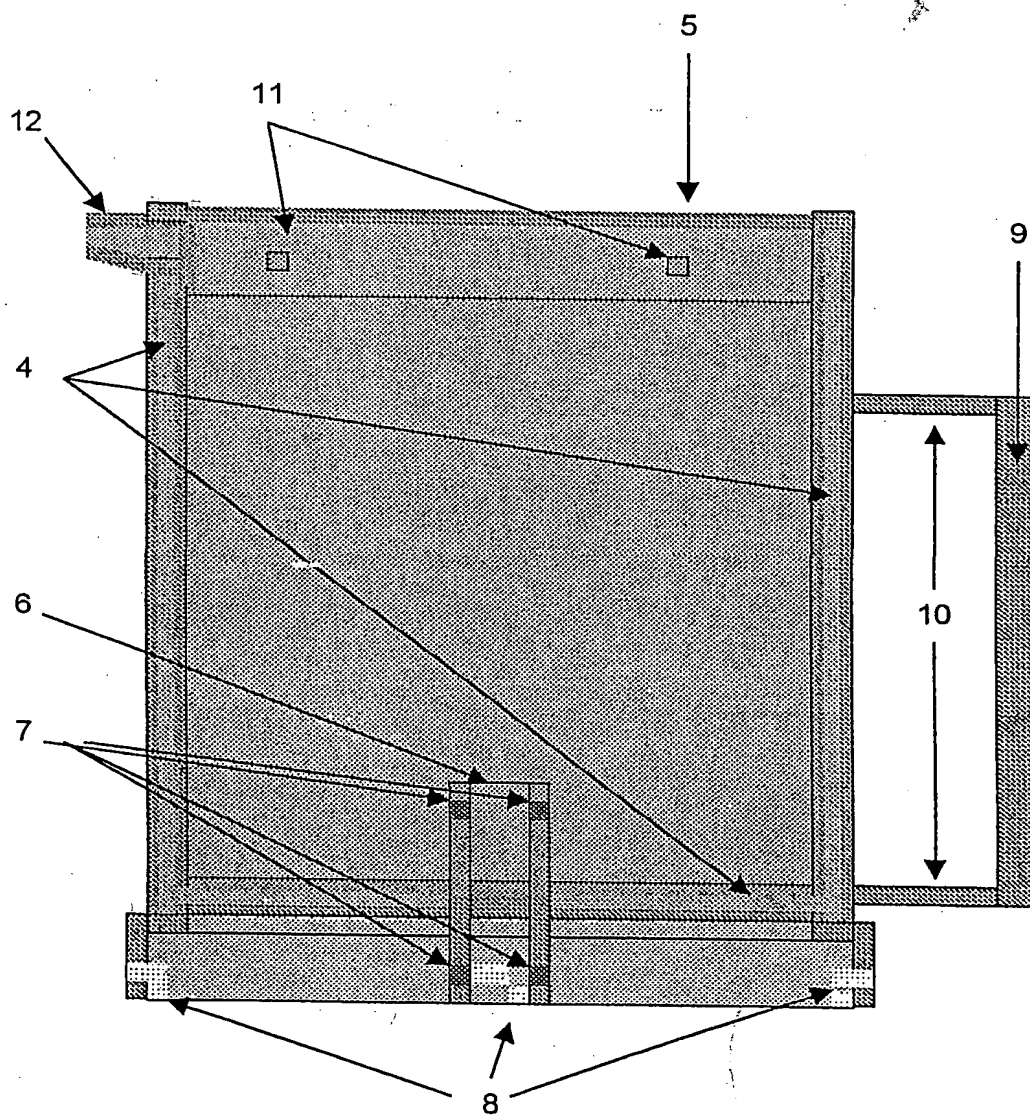
FIGURE 3



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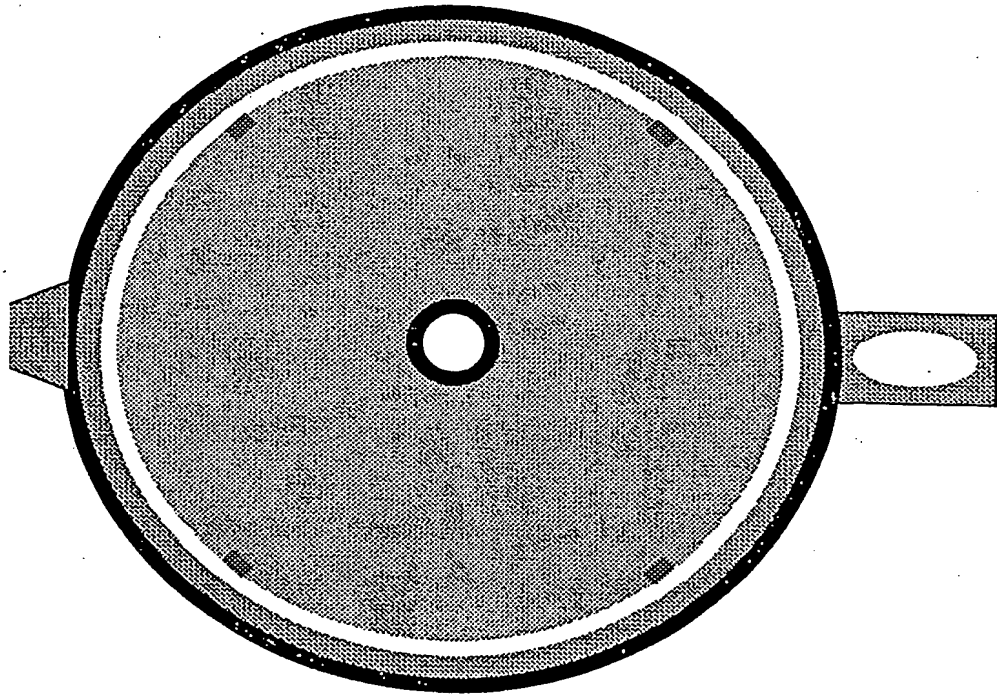
FIGURE 4



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FIGURE 5



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FIGURE 6

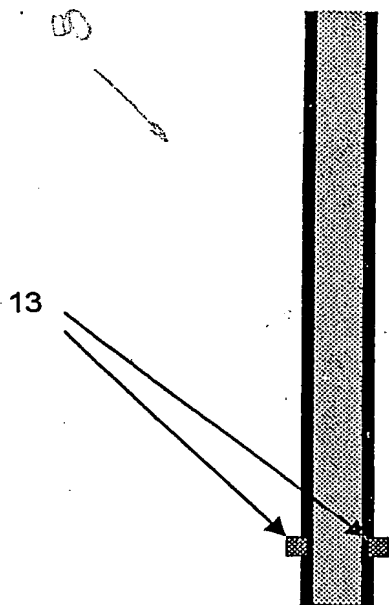


FIGURE 6.1.



FIGURE 7

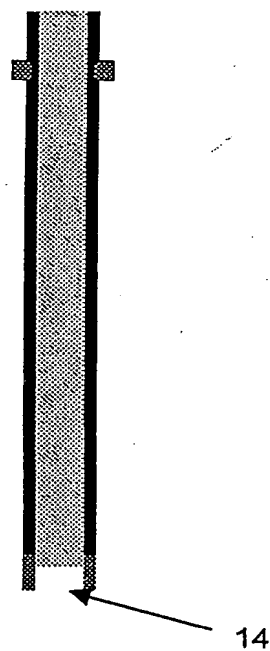


FIGURE 7.1.



FIGURE 8



FIGURE 9



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FIGURE 10

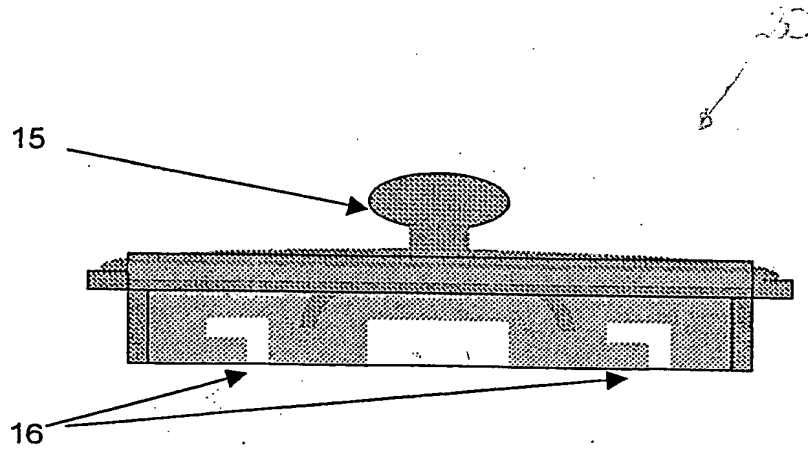
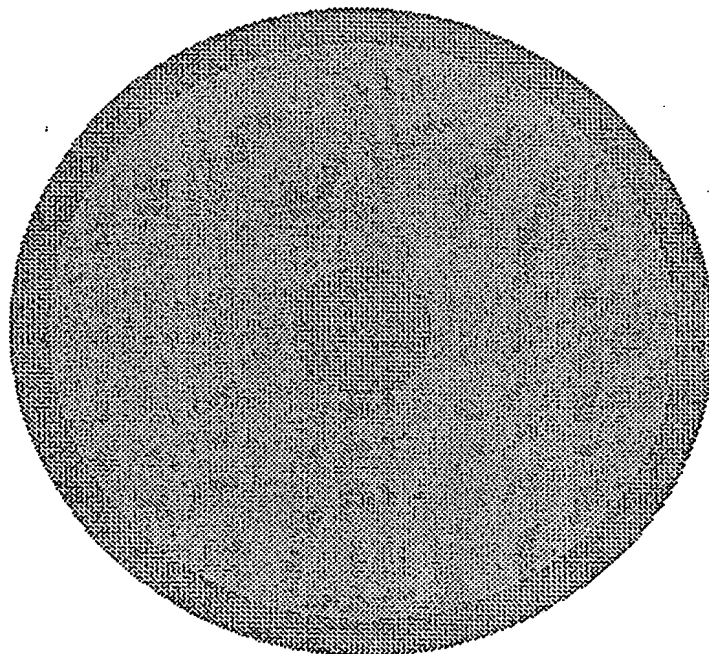
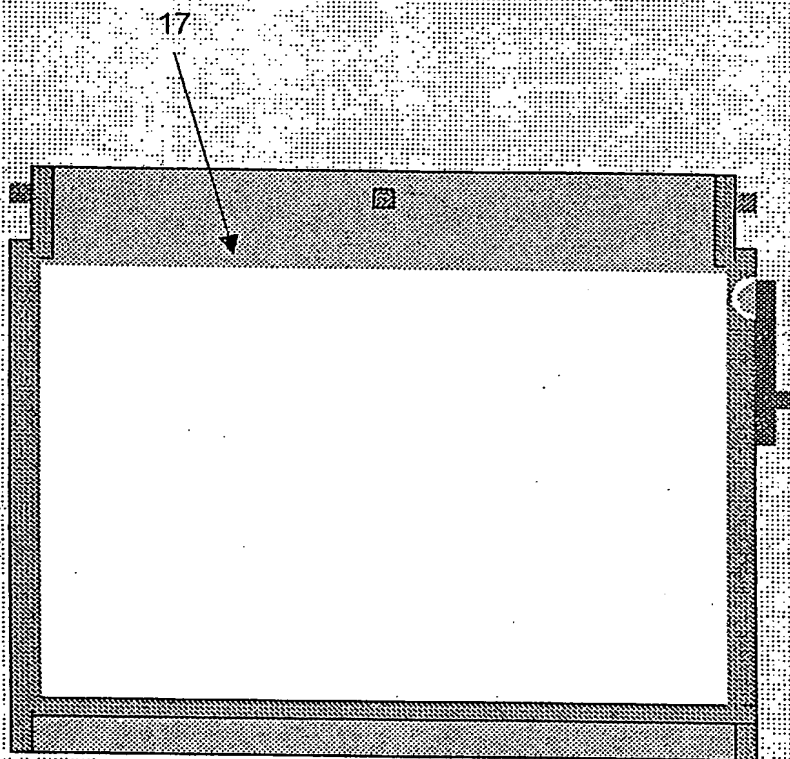


FIGURE 11



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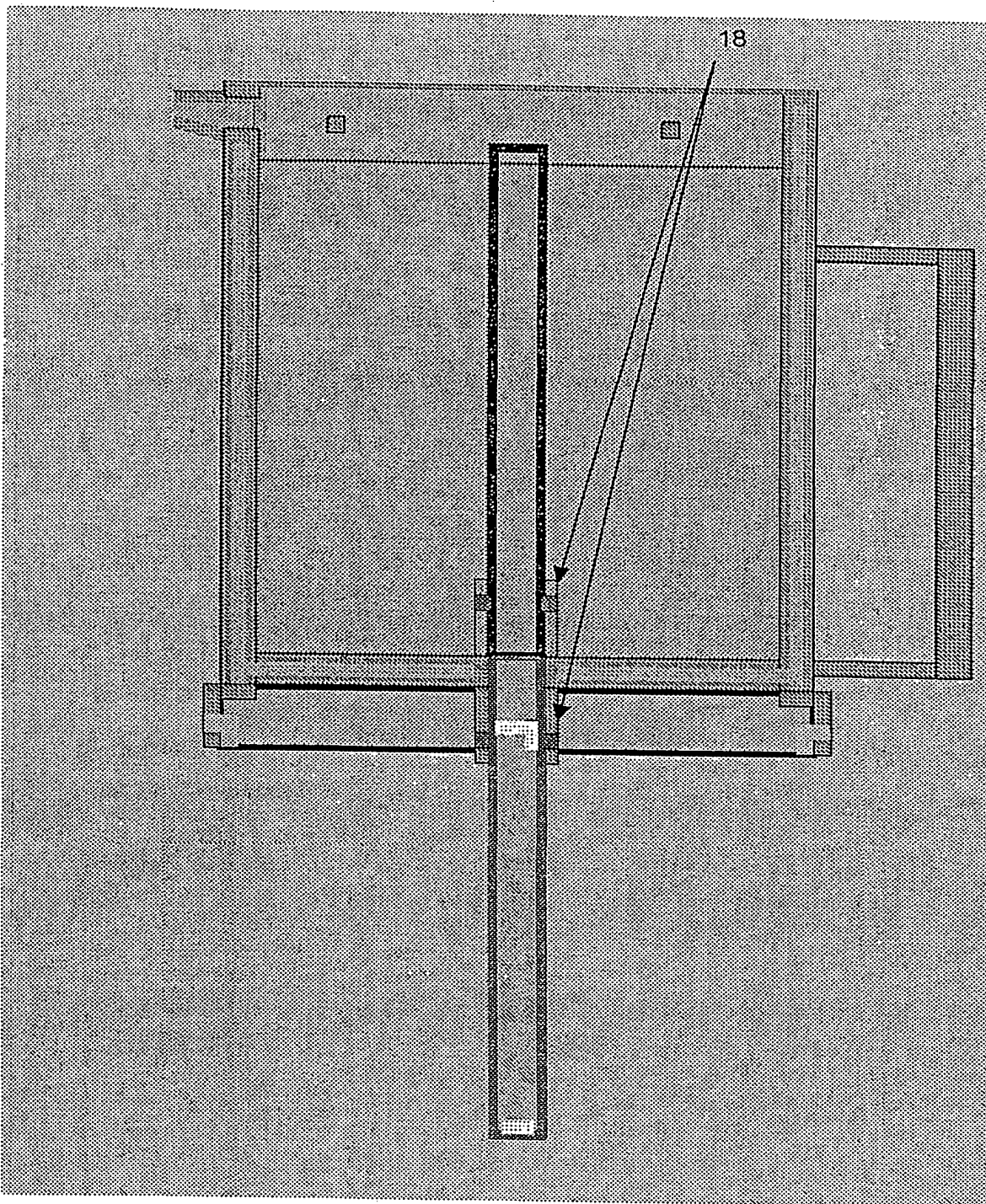
FIGURE 12



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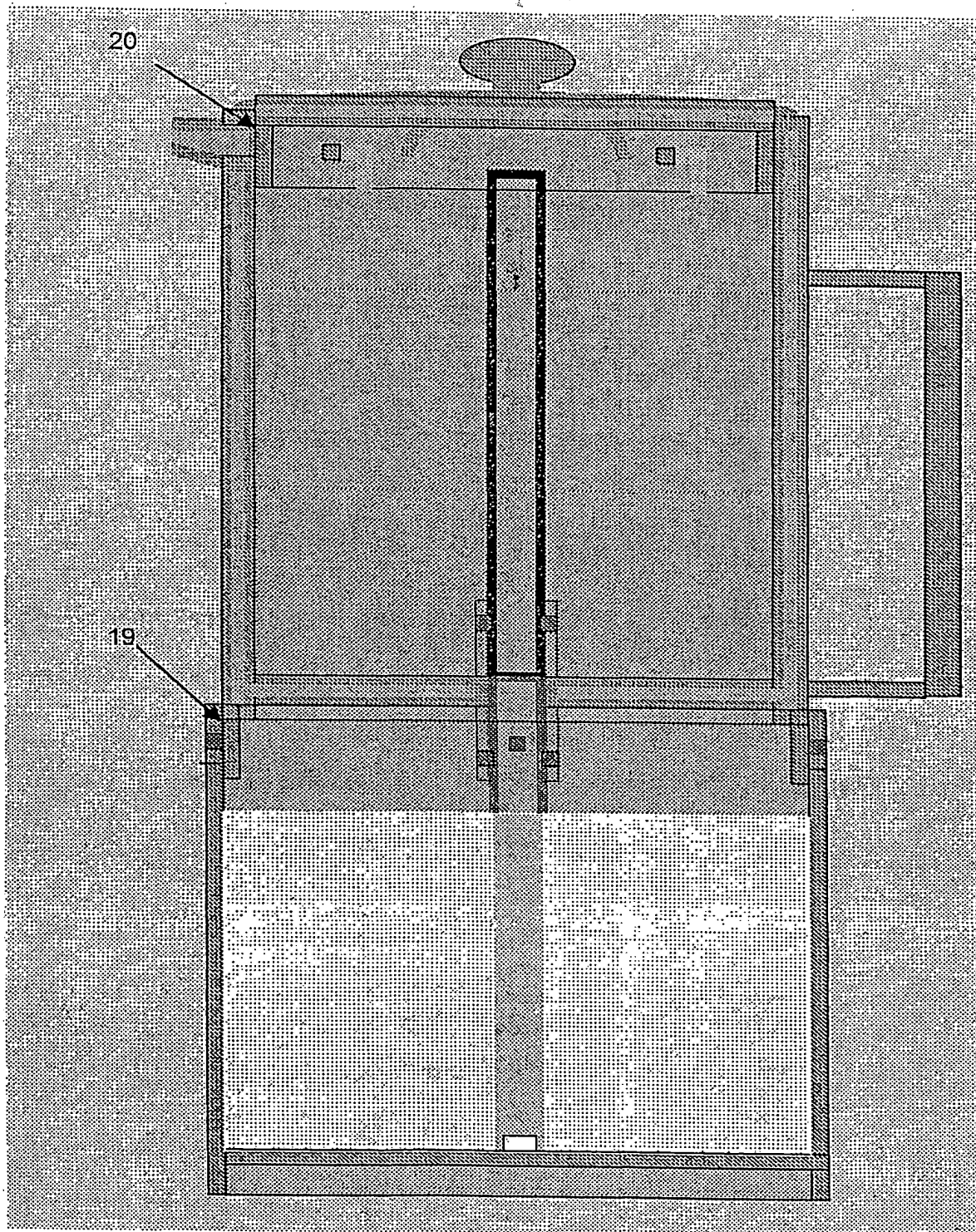
FIGURE 13



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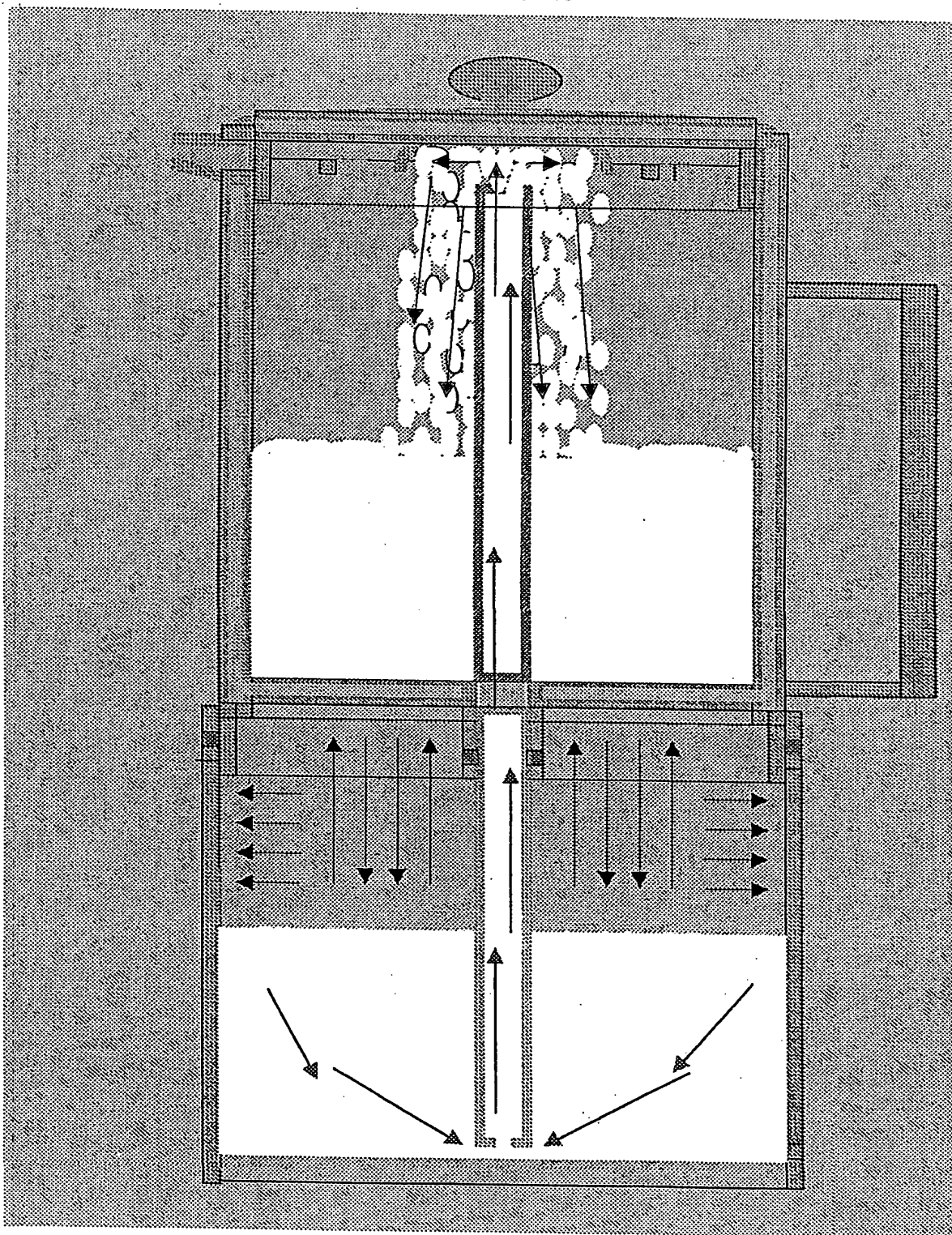
FIGURE 14



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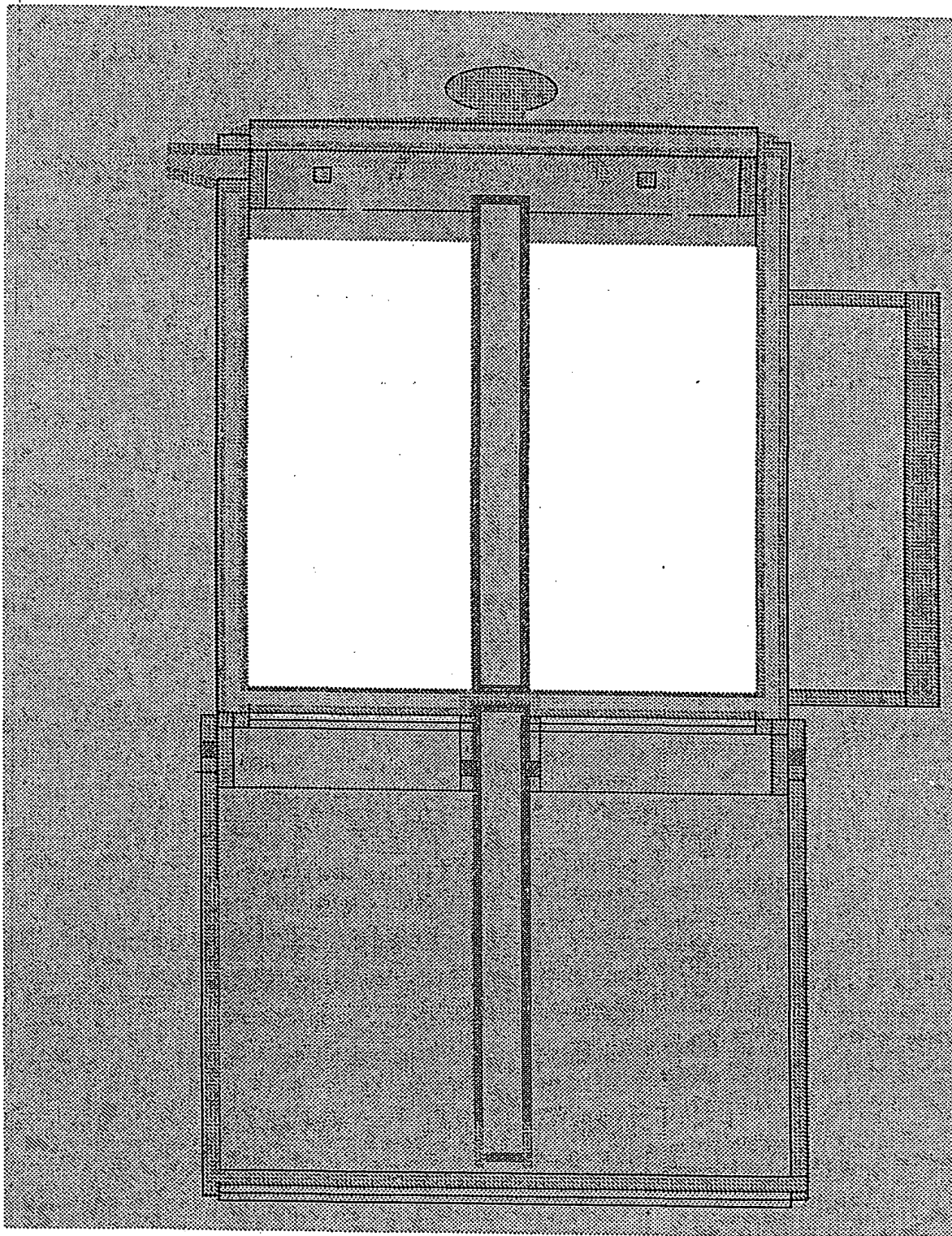
FIGURE 15



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FIGURE 16



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 02/00016

CLASSIFICATION OF SUBJECT MATTER

IPC⁷: A47J 27/58, 27/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: A47J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, DEPATISNET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	WO 01/30217 A1 (ALVES, Helio) 3 May 2001 (03.05.01) <i>abstract; figs. 8,10; claims.</i>	1-6
A	US 5800852 A (Levinson) 1 September 1998 (01.09.98) <i>abstract; fig. 1.</i>	1
A	EP 0838186 A1 (MOKADOSE S.R.L.) 29 April 1998 (29.04.98) <i>fig. 2,3.</i>	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

..A.. document defining the general state of the art which is not considered to be of particular relevance

..E.. earlier application or patent but published on or after the international filing date

..L.. document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

..O.. document referring to an oral disclosure, use, exhibition or other means

..P.. document published prior to the international filing date but later than the priority date claimed

..T.. later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

..X.. document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

..Y.. document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

..&.. document member of the same patent family

Date of the actual completion of the international search

11 April 2002 (11.04.2002)

Date of mailing of the international search report

28 May 2002 (28.05.2002)

Name and mailing address of the ISA/AT

Austrian Patent Office

Kohlmarkt 8-10; A-1014 Vienna

Facsimile No. 1/53424/535

Authorized officer

SEIRAFI

Telephone No. 1/53424/224

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/BR 02/00016-0

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
EP	A1	838186	29-04-1998	AT	E 195640	15-09-2000
EP	B1	838186	23-08-2000	DE	C0 69702886	28-09-2000
				DE	T2 69702886	11-01-2001
				ES	T3 2150192	16-11-2000
				IT	A0 960081	10-10-1996
				IT	A1 960081	10-04-1998
				IT	B1 1287771	18-08-1998
				US	A 5894785	20-04-1999
				ZA	A 9708955	23-04-1998
US	A	5800852	01-09-1998	US	A 5635233	03-06-1997
WO	A	130217			none	

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

Helio Vieira Alves
Rua Duave De Caxias No 86
04748-020 Sao Paulo - SP
Brasil

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing
(day/month/year) 28 May 2002 (28.05.02)

Applicant's or agent's file reference

IMPORTANT NOTIFICATION

International application No.
PCT/ BR 02/00016

International filing date (day/month/year)
31 January 2002 (31.01.02)

Applicant

HELIO VIERA ALVES

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statements under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where?

Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

2. ☐ The applicant is hereby notified that no international search will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) initial fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the text of both the protest decision thereon to the designated Offices
 - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminder:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant ~~must~~ **within 30 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide* Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/AT
Austrian Patent Office
Kohlmarkt 8-10
A-1014 Vienna
Facsimile No. 1/53424/200

Authorized officer

Wolf

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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended ?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When ? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How ? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments ?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the *PCT Applicant's Guide*, Volume II.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/BR 02/00016	International filing date (<i>day/month/year</i>) 31 January 2002 (31.01.2002)	(Earliest) Priority Date (<i>day/month/year</i>) 1 February 2001 (01.02.2001)
Applicant HELIO VIERA ALVES		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (See Box II).

4. With regard to the **title**.

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**.

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.: 15

☐ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 02/00016

CLASSIFICATION OF SUBJECT MATTER

IPC⁷: A47J 27/58, 27/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: A47J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, DEPATISNET

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	WO 01/30217 A1 (ALVES, Helio) 3 May 2001 (03.05.01) <i>abstract; figs. 8, 10; claims.</i>	1-6
A	US 5800852 A (Levinson) 1 September 1998 (01.09.98) <i>abstract; fig. 1.</i>	1
A	EP 0838186 A1 (MOKADOSE S.R.L.) 29 April 1998 (29.04.98) <i>fig. 2, 3.</i>	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

..A.. document defining the general state of the art which is not considered to be of particular relevance

..E.. earlier application or patent but published on or after the international filing date

..L.. document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

..O.. document referring to an oral disclosure, use, exhibition or other means

..P.. document published prior to the international filing date but later than the priority date claimed

..T.. later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

..X.. document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

..Y.. document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

..&.. document member of the same patent family

Date of the actual completion of the international search

11 April 2002 (11.04.2002)

Date of mailing of the international search report

28 May 2002 (28.05.2002)

Name and mailing address of the ISA/AT

Austrian Patent Office

Kohlmarkt 8-10; A-1014 Vienna

Facsimile No. 1/53424/535

Authorized officer

SEIRAFI

Telephone No. 1/53424/224

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/BR 02/00016-0

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
EP	A1	838186	29-04-1998	AT	E	195640	15-09-2000
EP	B1	838186	23-08-2000	DE	C0	69702886	28-09-2000
				DE	T2	69702886	11-01-2001
				ES	T3	2150192	16-11-2000
				IT	A0	960081	10-10-1996
				IT	A1	960081	10-04-1998
				IT	B1	1287771	18-08-1998
				US	A	5894785	20-04-1999
				ZA	A	9708955	23-04-1998
US	A	5800852	01-09-1998	US	A	5635233	03-06-1997
WO	A	130217				none	

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